2.0 Regulation Governing Individual Onsite Wastewater Disposal

Design Standard XI
Disinfection

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Mississippi State Department of Health

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I. Introduction

The discharge of treated wastewater must be disinfected if the effluent will be disposed of by means of a surface discharge (overland or spray disposal). The predominant form of disinfection in use today is chlorine.

II. Description

1. Individual onsite wastewater disposal system that utilizes surface land application for final disposal shall have an approved method of effluent disinfection provided.

2. The disinfection method that is most commonly used is chlorination. A chlorinator is a device that allows the treated effluent to pass around and over tablets or the effluent is dosed with a specific amount of liquid chlorine by use of a pump. A tablet chlorinator is not considered charged until the feed tube is totally filled.

3. The recommended level of chlorination is a chlorine residual of .1 to 1 ppm. (parts per million).

4. The disinfected effluent is then stored in a chlorine contact chamber for one hour.

5. The chlorinator should be checked as needed with chlorine being added to the system when necessary.

6. The chlorine tablets must be a wastewater grade chlorine. Swimming pool chlorine shall not be used for the disinfection of wastewater, as it is very stable and does not breakdown rapidly and may enter streams.

III. Locations

1. The chlorinator and chlorine contact chamber should not be located in an area that collects surface water. This water may enter the chlorinator or chlorine contact unit causing a failure by flooding. This flooding will cause the effluent to be discharged before it is properly disinfected.

2. The chlorinator and chlorine contact chamber must be installed according to the following setbacks:

a.	foundations	5 feet
b.	property lines	10 feet
c.	potable water supplies and all private wells	50 feet

IV. Design

1. The chlorine contact chamber shall be constructed to withstand the earth pressures encountered and able to withstand the chemical effects of chlorine.

2. The chlorine contact chamber shall be equipped with baffles or provided with sanitary " tees" to provide adequate mixing and contact of chlorine and effluent **[See Figure 1]**.

3. The contact chamber must have a grade level access cover to allow for routine maintenance if needed.

4. If the chlorine contact chamber is separate from the ATU it shall be a minimum of 65 gallons capacity to maintain a minimum detention time of one hour. If the chlorine contact chamber is an integral component part of the design of the ATU it shall provide the equivalent of the required one hour contact time. This efficiency shall be certified by the third party certifying entity.

5. The chlorine contact chamber must be sealed so as to prevent the entry of surface or ground water.

6. All materials that are used in the chlorinator and chlorine contact chamber must be corrosive resistant to wastewater and chlorine.

7. It is recommended that the outlet be placed above any seasonal water tables as indicated by gray mottles. Sealant should be applied to the lid, inlet, outlet and access opening to prevent groundwater and surface water from enter the contact chamber.

8. When the treatment unit is emptied and cleaned the chlorine contact chamber should be checked for maintenance purposes. Any sludge accumulated should be removed and properly disposed.

9. Design of the chlorine contact chamber is shown in Figure 1.

V. Types of Chlorinators

Two types of chlorinators are available for installation. These are the pre-manufactured and "built on site". The pre-manufactured chlorinator may be purchased from the manufacturer of the aerobic treatment unit or distributor of chlorinators.

The chlorinator must meet the following requirements:

a. Sealed to prevent surface water from entering the chlorinator.

b. Installed level on undisturbed earth.

c. Chlorine tablet not in contact with wastewater except in times of flow.

d. Grade level access.

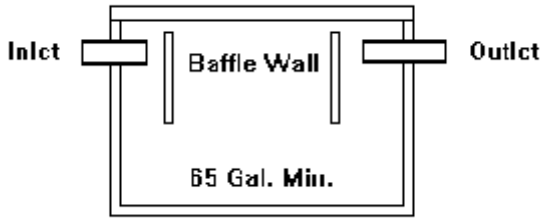
e. Tablets retained in chlorinator stack.

f. Chlorine tablet stack constructed so as to remove all chlorine tablets when stack is removed from chlorinator.

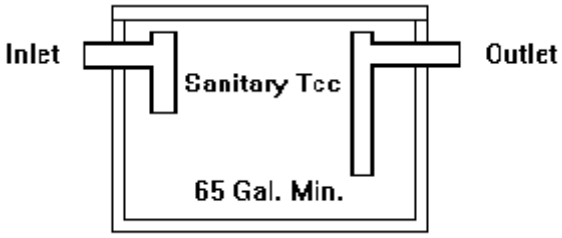
g. Vandal-resistant cover.

Figure 1
Chlorine Contact Chamber

The discharge from treatment systems to surface containment shall be adequately disinfected. This shall include a chlorine contact chamber equipped with baffles or tees, designed for a minimum detention time of one hour at the design flow, and a tablet chlorinator. Chlorine tablets utilized must be specifically made for wastewater disinfection purposes. The design below is an example, only. The baffles may vary in number and design, with a minimum of one baffle each at the inlet and outlet. **[DRAWING A]** Tees may be used instead of baffles. **[DRAWING B]**



DRAWING A



DRAWING B

1. The chlorine contact chamber must be constructed of material that is impervious to the chemical action of chlorine.

2. The chamber must have a grade level access cover to allow for maintenance when necessary. (Example when a pump is installed in the chamber or chlorination equipment is in the chamber)